

Analysis of the Genetic Potential and Gene Expression of Microbial Communities Involved in the In Situ Bioremediation of Uranium and Harvesting Electrical Energy from Organic Matter

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Abstract

The goal of this Genomes-to-Life project is to develop models that can describe the functioning of the microbial communities involved in the *in situ* bioremediation of uranium-contaminated groundwater and harvesting electricity from waste organic matter. Previous studies have demonstrated that the microbial communities involved in uranium bioremediation and

energy harvesting are both dominated by microorganisms in the family *Geobacteraceae* and that these *Geobacteraceae* are responsible for the uranium bioremediation and electron transfer to electrodes. The research plan is diagrammed below. Examples of how both pure culture and environmental genomic studies have dramatically changed the concepts of how *Geobacteraceae*-dominated subsurface communities function will be presented.

